A PLANT PRESCRIPTION FOR THE PLANET: A PHYSICIAN'S ETHICAL DUTY TO ADVISE PATIENTS TO ADOPT A PLANT-BASED DIET

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Abstract

The earth is facing a climate emergency, and dramatic and massive systemic change is urgently needed right now to reduce emissions in order to prevent future catastrophic harms from climate change. It is no longer the case that we can rely on subsets of society to dedicate time and energy on “the climate change problem” while everyone else carries on with life as usual—we need all hands on deck. This includes those of us in healthcare.

Indeed, climate change is a public health problem. It is increasingly clear that climate change poses significant risks to the health of individuals inhabiting our planet. An important area where the public health issue of climate change intersects with issues of individual health traditionally within the purview of physicians is that of dietary behavior. Evidence shows that, on the whole, the increased adoption of plant-based diets has significant beneficial effects on individual health. Moreover, a global shift toward plant-based diets is one of the most important way to help reduce greenhouse gas emissions from the agricultural sector, a critical driver of climate change.

I here propose a two-stage framework to evaluate when a physician has a duty to advise an individual patient to contribute to a public health good. Stage one first renders permission and, if stage one is met, stage two renders the duty. Under this framework, a physician has a duty to advise a patient to contribute to a public health good when (1) the actions that comprise the contribution positively impacts the patient’s individual health, and (2) the public health goal to be achieved (or threat to be mitigated) is critically significant. This framework is here applied to the case of plant-based diets and climate change. First, physicians are permitted to advise patients to adopt a plant-based

diet because such diets are also shown to have direct benefits to patient health. Accepting that premise allows us to consider the more demanding conclusion: physicians have an ethical obligation to advise patients to adopt a plant-based diet because of the dire public health problem of climate change.

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Contents

Introduction

Why do doctors advise patients to get vaccines? Certainly, advising a young, healthy adult to get the annual flu shot has a direct positive effect on that patient—he or she will be protected from that particular set of flu strains for the year. But the primary motivation behind that advice to that patient is not about that patient's health at all—that young, healthy patient is unlikely to suffer serious consequences from the flu. The primary motivation is, rather, a public health one to protect the most medically vulnerable members of the patient's community from getting the flu. Indeed, that must be the primary motivation, because we justify the, albeit incredibly low, risk of vaccine side effects to a patient by citing that such risks are far outweighed by the vaccine's public health benefits.[1] And few credibly question this concept where a public health motivation justifies the content of a physician's advice to an individual patient. Vaccines present a context wherein we allow doctors to encourage patients to modify their individual behaviors (i.e. urge getting the flu shot where a patient otherwise would not) for the sake of public health (i.e. the health of other people). The same could arguably be said about advice to certain low-risk patient populations about socially distancing to "flatten the curve" during the early months of the COVID-19 pandemic.

I here suggest that a similar justification exists for the dire public health issue of climate change. Specifically, physicians should, wherever possible and when consistent with an individual patient's unique health needs, advise patients to incorporate a plant-based diet in order to help curb the trajectory of climate change. More broadly, I

[1] The Importance of Childhood Vaccinations, Statement of Anthony S. Fauci, MD. National Institute of Allergy and Infectious Diseases. April 29, 2019. https://www.niaid.nih.gov/news-events/importance-childhood-vaccinations (last accessed 5/2/21)

propose a two-stage framework to evaluate when a physician has a duty to advise a patient to contribute to a public health good. These stages are lexically ordered such that the first stage takes absolute priority. Part one renders permission and part two renders the duty. Both components are required. Under this framework, a physician has a duty to advise a patient to contribute to a public health good when (1) the actions that comprise the contribution positively impacts the patient's individual health, and (2) the public health goal to be achieved (or threat to be mitigated) is critically significant. This framework will be explored as applied to the case of plant-based diets and climate change yielding the following: (1) Physicians are permitted to advise patients to adopt a plant-based diet because such diets are also shown to have direct benefits to patient health. Accepting that premise allows us to consider the more demanding conclusion: (2) physicians have an ethical obligation to advise patients to adopt a plant-based diet because of the dire public health problem of climate change.

I. The Climate Change Problem

As of January 2020, more than 11,000 scientists from around the world declared that that Earth is "clearly and unequivocally" facing a climate emergency.[2] The world's leading climate scientists have warned that global warming of an additional 1°C over the next decade would bring us to a tipping point beyond which there is a significant increase in risk of extreme weather events, human harm, broadly catastrophic sea level rise, irreversible loss of ecosystems, and economic damage.[3] I will not here itemize the

[2] Ripple, William J et al. World Scientists' Warning of a Climate Emergency. Bioscience, January 2020, Vol. 70 No. 1, 8-12

[3] IPCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts

exhaustive research and data analyses that have examined the issue of global climate change, but suffice to say that, at such a level of climate change, most people on the planet will be negatively affected, and some catastrophically.

For context, the UN Intergovernmental Panel on Climate Change (IPCC) calculates that human activities on earth have caused a global temperature increase of approximately 1°C above pre-industrial levels; so that is the current baseline. If current human activity rates were to remain constant, scientists estimate we will reach 2°C by 2036.[4] At that 2°C mark, coral reefs will mostly disappear, ice-free summers in the Arctic become ten times more likely, one third of the planet will experience severe heat waves, and the likelihood of catastrophic burning of major forests (similar to that recently seen in Australia) and disintegration of the Antarctic ice sheet dramatically increase.

As a result, dramatic and massive systemic change is urgently needed right now to reduce emissions in order to prevent future catastrophic harms from climate change. As will be discussed, reducing emissions from agriculture is an essential part of meeting emission reduction goals. While reductions in food waste and improved agricultural practices are also worthy, a shift toward plant-based diets is the most important way to reduce emissions from agriculture.

II. Climate Change is a Public Health Issue

to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. World Meteorological Organization, Geneva, Switzerland, 32 pp.

[4] IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp

It is increasingly clear that climate change poses significant risks to the health of individuals inhabiting our planet. We are currently witnessing the worldwide devastation that results from a newly emerged infectious disease in COVID-19. The WHO has already warned that climate change increases the likelihood of spread of certain already-existing pathogens, like malaria and dengue.[5] Moreover, climate change is a public health issue in that it affects quality and quantity of water supplies, food supplies, air quality, precipitation changes affecting crop livelihood, and so much more. It is also a risk amplifier in that it affects the social determinants of health by affecting different populations differently. The Fourth National Climate Assessment, published in 2017 as part of the Global Change Research Act's required report to Congress and the President, reports that that impacts from climate change on extreme weather, climate-related events, air quality, and the transmission of disease through insects, food, and water increasingly threaten public health and well-being.[6] The Annals of Internal Medicine list the potential devastating effects on human health as including higher rates of respiratory and heat-related illness, increased prevalence of vector-born disease, and malnutrition.[7] One cannot holistically approach health and wellness intervention without addressing climate change.

III. The Impact of Plant-Based Diets on Climate Change and Individual Health

[5] McMichael, AJ, et al. Climate Change and Human Health: Risks and Responses. World Health Organization. Geneva: 2003. Chapter 6. Available online at https://www.who.int/globalchange/climate/en/chapter6.pdf (last accessed 5/2/2021)

[6] Fourth National Climate Assessment, US Global Change Research Program. https://nca2018.globalchange.gov/ (last accessed 5/2/2021)

[7] Crowley, Ryan A. Climate Change and Health: A Position paper of the American College of Physicians. 3 May 2016.

Numerous rigorous models have shown that the production of meat and dairy contributes substantially to climate change. A conservative estimate puts the contribution of total greenhouse gas emissions ("GHG") from agriculture at 18%, with most of that coming from animal agriculture.[8] As Nobel Prize winning physicist and former U.S. Energy Secretary Stephen Chu estimates, animal agriculture generates more GHG emissions than power generation, noting that if all cattle and dairy cows were to make up a country, that country would have more GHGs than the entire EU.[9] A whopping 40% of the earth's total land surface is dedicated to the food system, with 70% of that being used for livestock (which means 30% of all land on earth is being used for livestock).[10]

Importantly, meat takes far more resources to produce for consumption than do alternative sources of nutrition. For non-meat foods, it takes an average of 7-10 calories to produce, process, and package one food calorie. For meat, that ratio is 40:1.[11] This data exists in a troubling underlying context where meat consumption is on the rise. Globally, meat consumption is expected to increase 1.4% per year through 2023.[12] In addition, US meat consumption is, on average, 20-60% higher than that recommended in the 2015-2020 Dietary Guidelines.[13] All of this led a 2019 Special Report from the

[8] *The Impact of Climate Change*, United Nations Environment Programme, 1993, Climate Action Network.
[9] McMahon, J. Meat and Agriculture Are Worse For The Climate Than Power Genreation, Steven Chu Says. Forbes, 2019. https://www.forbes.com/sites/jeffmcmahon/2019/04/04/meat-and-agriculture-are-worse-for-the-climate-than-dirty-energy-steven-chu-says/?sh=1550218b11f9 (last accessed 5/2/21)
[10] Food and Agricultural Organisation of the United Nations. http://www.fao.org/newsroom/en/news/2006/1000448/index.html (last accessed 5/2/21)
[11] Capper,: NPR The Salt. (Jun 27, 2012). A Nation Of Meat Eaters: See How It All Adds Up.
[12] Ritchie, Hannah, Global Meat Consumption Continues to Rise Global meat production by region from 1961-2018. IFT.org. Adapted from Hannah Ritchie/Our World in Data. Data source: FAO. Chart by Carbon Brief using Highcharts.
[13] Notably, the US Dietary Guidelines are recommendations based on health, not GHGs.

IPCC to state that “a shift toward plant-based diets” is one of the most significant ways to reduce GHGs from the agricultural sector.[14]

While a shift toward plant-based diets globally is a critical part of tackling the climate change problem, plant-based diets also have demonstrable health benefits on the individual level. Controlled studies have suggested that plant-based diets have significant beneficial effects on body weight,[9] as well as coronary artery disease,[15] [16] [17] plasma lipids,[18] type 2 diabetes,[19] and several types of cancer.[20] [21] [22] Similarly, vegetarians have a significantly lower risk of being overweight and experiencing obesity, compared with nonvegetarians.[23]

IV. A Framework for Public Health Advocacy in the Clinical Setting

Few patients would want their doctor to follow a solely public-health optimizing—perhaps even utilitarian—ethos in the provision of healthcare. Few would seek out a

[14] Climate Change and Land, IPCC Special Report. https://www.ipcc.ch/srccl/ (last accessed 5/2/21)
[15] Esselstyn CB, Jr. Updating a 12-year experience with arrest and reversal therapy for coronary heart disease (an overdue requiem for palliative cardiology). Am J Cardiol. Aug 1 1999;84(3):339-341, A338
[16] Esselstyn CB, Jr., Ellis SG, Medendorp SV, Crowe TD. A strategy to arrest and reverse coronary artery disease: a 5-year longitudinal study of a single physician's practice. *J Fam Pract.* Dec 1995;41(6):560-568
[17] Ornish D, Brown SE, Scherwitz LW, et al. Can lifestyle changes reverse coronary heart disease? The Lifestyle Heart Trial. Lancet. Jul 21 1990;336(8708):129-133
[18] Barnard ND, Scialli AR, Bertron P, Hurlock D, Edmonds K, Talev L. Effectiveness of a low-fat vegetarian diet in altering serum lipids in healthy premenopausal women. Am J Cardiol. Apr 15 2000;85(8):969-972
[19] Barnard ND, Cohen J, Jenkins DJ, et al. A low-fat vegan diet improves glycemic control and cardiovascular risk factors in a randomized clinical trial in individuals with type 2 diabetes. Diabetes Care. Aug 2006;29(8):1777-1783
[20] Saxe GA, Hebert JR, Carmody JF, et al. Can diet in conjunction with stress reduction affect the rate of increase in prostate specific antigen after biochemical recurrence of prostate cancer? J Urol. Dec 2001;166(6):2202-2207
[21] Rock CL, Flatt SW, Natarajan L, et al. Plasma carotenoids and recurrence-free survival in women with a history of breast cancer. J Clin Oncol. Sep 20 2005;23(27):6631-6638
[22] Ornish D, Weidner G, Fair WR, et al. Intensive lifestyle changes may affect the progression of prostate cancer. J Urol. Sep 2005;174(3):1065-1069; discussion 1069-1070
[23] Melby CL, Toohey ML, Cebrick J. Blood pressure and blood lipids among vegetarian, semivegetarian, and nonvegetarian African Americans. Am J Clin Nutr. Jan 1994;59(1):103-109

doctor who advised patients courses of action with the intent of maximizing the well-being of the majority of the population without regard to the results for that specific patient. Take the absurd extreme: no patient would want her doctor to advise her to donate all of her organs to patients on the UNOS list, thereby certainly leading to her death but benefiting a great number of people. Patients rightly expect their doctors to act as their own advocate for their health and to tailor advice and care to their needs and specific situation.

But there are examples where patients accept the infiltration of certain public health aims into the doctor-patient relationship. As described above, the case of vaccination is one example. A healthcare provider advising a patient to be a "free-rider" on herd immunity might be reasonable in the context of one specific patient's healthcare needs. That patient gets all the benefit of reduced exposure to infectious diseases without any of the inconveniences of making an appointment and getting a shot. Fortunately, healthcare providers do not end the calculus at a myopic, single-patient-centered view of healthcare. To the contrary, we look steps ahead and understand that medical advice requires the lens of a broader context that includes the global society in which we live. We see both that (1) promoting broader public health leads to better health outcomes for many individual patients, and (2) each medical professional has an additional public health duty beyond simply the patient before her in the clinic.

Indeed, many of the core ethical tenets of medicine reflect the concept that healthcare providers are not to behave as purely individual-patient focused in their provision of healthcare advice. To be sure, we require patient autonomy and the rigors of informed consent that go along with it; we demand beneficence and non-maleficence

to the specific patient seeking our care. But patients understand, and expect, that there are limits to a medical system model concerned solely with one patient's health to the disregard of all else. Despite her clinical relationship, a doctor is not expected to lie to an ethics committee considering whether a patient is an appropriate candidate to receive an organ over another patient just to be a zealous advocate for that patient.[24] Moreover, a doctor must disclose patient communication when it involves an imminent risk of danger to another person, which incorporates a higher duty to the public beyond one doctor-patient relationship.[25] We expect physicians to act as stewards for our societal health and understand the reciprocal problems that stem from an incentive to help one patient at all costs.

These contours make clear that physicians have dual roles in the provision of healthcare—a role in the health of the immediate patients in their clinics and a role in the health of society at large. This invites a framework that can appropriately weigh these two motivations. I propose a two-stage framework, as follows: First, physicians are permitted to advise patients to take actions that positively impact a public health problem if and only if that action also positively impacts the patient's individual health. Once the permission threshold is met, the second stage of the framework can be considered: physicians have a duty to advise patients to take that action if the public health benefit to be achieved (or threat to be mitigated) is critically significant. The patient health benefit provides the permission, the public health benefit provides the duty. Importantly, these stages are lexically ordered such that the first stage takes

[24] AMA Code of Medical Ethics' Opinions on Organ Transplantation, March 2021. https://journalofethics.ama-assn.org/article/ama-code-medical-ethics-opinions-organ-transplantation/2012-03 (last accessed 5/2/21)
[25] *Tarasoff v. Regents of the University of California*, 17 Cal. 3d 425, 551 P.2d 334, 131 Cal. Rptr. 14 (Cal. 1976)

absolute priority. As applied below, the application of this framework will yield the conclusion that physicians have a moral obligation to advise patients to adopt a plant-based diet in order to mitigate climate change, and then that conclusion will be explored in the context of a number of common and important cases.

V. Application to Climate Change

Doctors routinely rank among the most trusted professions.[26] We expect physicians to advise patients to take action on issues that directly affect their personal health. But one would not expect his or her doctor to advise action on things outside of that sphere, aimed solely at the public good. A patient would be taken aback if his doctor admonished him for driving a gas-guzzling truck, offering the advice that his personal contribution to GHGs will lead to a negative effect on the health of individuals on the whole and in the future. But that same patient is unlikely to bristle if his doctor advised him to walk more instead of drive because of the positive cardiovascular and orthopedic impacts of walking on his health.

Accepting, then, that dietary advice for a patient's health falls squarely within a doctor's jurisdiction and, as detailed earlier, incorporation of a plant-based diet is typically good for a patient's health, the first principle is met (permission granted). The second may then be considered (obligation to act). While the dire nature of the consequences of climate change and the absolute urgency of our collective response is only briefly discussed in this paper, make no mistake: the future of human life on this planet as we know it turns on what we humans do right now. Two years ago, if we had a

[26] McCarthy, N. America's Most and Least Trusted Professions. Forbes. 2019. https://www.forbes.com/sites/niallmccarthy/2019/01/11/americas-most-least-trusted-professions-infographic/?sh=2f2984207e94 (last accessed 5/2/21)

warning that a virus would spread across the globe, upending life as we know it, causing devastating suffering and loss of life and livelihood, we likely would have taken drastic measures to curb its effects. Unfortunately, the specific occurrence of COVID-19 was not predictable. Alternatively, it is known that climate change will have devastating consequences

No longer are there subsets of society that we can rely on to focus time and energy on “the climate change problem” while everyone else carries on with life as usual. The fallacy that the necessity of immediate action falls discretely on some sectors and not others must fall away. Just as government regulators use carrots and sticks to target industry emissions, just as scientists work toward innovative solutions on emission, and just as aid organizations develop approaches to handle increased poverty, hunger, and natural disasters from climate change, so too must every single industry commit to the fight. This includes those of us in healthcare.

Thus, the two-stage framework can be applied to this context. In sum, physicians are permitted to advise patients to adopt a plant-based diet because such diets are shown to have direct benefits to patient health. With that established, physicians have a moral imperative to provide such advice with the motivation of influencing the collective effort to curb climate change. The obligation is driven by the dire public health problem of climate change.

VI. Application to Other Cases

In order to ensure that this two-stage framework yields appropriate results in application, it will now be considered in the context of some illustrative examples.

One very fresh application of this framework can be seen in the context of the global health system response to the COVID-19 pandemic. The almost universal advice from healthcare providers has been for every individual across the globe to stay inside and engage in "social distancing." The case infection rate for COVID-19 is estimated to be at or less than 1% and estimates indicate that 80% of those infected will experience only mild symptoms.[27] What, then supports the acceptability of advice to 100% of patients to take on the incredibly onerous task of staying six feet away from all other people at all times? In part, individual physician advice to patients was given on a mass scale where the primary motivation is to prevent overwhelming the hospital system in order to protect the health of vulnerable populations. The driving goal has not been to prevent all individuals from ever getting COVID-19, but rather to "flatten the curve" to allow the healthcare system to continue to serve the population as a whole.

This approach aligns nicely with the two-stage framework. Physicians are permitted to advise patients to stay home and socially distance because it decreases the risk of that individual patient getting COVID-19. They are, then, obligated to provide that advice because it benefits public health in the ways described above.

Similar outcomes can be seen in numerous healthcare scenarios. Antibiotic stewardship practices, public health considerations that go into individual opioid prescription practices, and duties to warn third parties at risk of harm despite obligations of doctor-patient confidentiality, just to name a few. In each of these situations, the physician may advise the patient of the action because it does correlate with a direct,

[27] Infection Fatality Rate of COVID-19 inferred from seroprevalence data. WHO. https://www.who.int/bulletin/volumes/99/1/20-265892/en/ (last accessed 5/2/21)

articulable benefit for the patient, but the physician may be, in actuality, motivated most strongly to provide the advice by public health aims.

VII. Exploring the Limits of the Framework

It is important to consider whether the application of this framework could lead to perverse outcomes. Understandably, there is some level of discomfort in allowing for a situation where the motivation actually driving advice—a public health one—is different from what a patient perceives—an individual health one. Is there something wrong with a doctor being motivated to advise patients on a course of action because that doctor cares more about the public health motivation than the individual health motivation for this specific patient? In truth, the motivations behind anyone in an advice-giving profession are unknowable. As only objective criteria are observable, it is reasonable to conclude that a doctor is allowed to be motivated by both the patient's individual health and the broader public health concerns so long as both are present. With respect to eating a plant-based diet, the evidence supports the appropriateness of advice to patients to, in the absence of other patient-specific health factors, incorporate a plant-based diet to a greater extent. Therefore, both motivations are present, and the weight a particular doctor may personally place on one versus the other—public health versus individual health—need not be ascertained. The permission for the advice is obtained from the presence of the individual health motivation. An additional scenario can help us to push the boundaries of this framework: the impact of overpopulation on climate change. As some have pointed out, a global decrease in procreation would have a

significant positive benefit in helping to curb climate change.[28] With the same dire public health motivation involved here as with our plant-based eating case, are doctors required to advise patients to have fewer biological children?

Here, we are left with a close call in some cases. Our framework requires, at the outset, that we have a clearly identified health benefit to the individual patient. One could make the argument that pregnancy puts pregnant people at some risk of morbidity and mortality—a risk that, unfortunately, increases or decreases based on a mother's socio-economic status, ethnicity, and geographic location in the world. Ultimately, the risk-benefit health calculus of pregnancy nowhere near as binary as that of adopting a plant-based diet. Forgoing pregnancy may have health benefits for some, but will also mean forgoing huge benefits for others. Pregnancy can confer numerous psychological benefits that may come from having children, some decreased risk for certain cancers, the possibility of being taken care of in old age. Indeed, many things in life come with risks, and the mitigation of such risks is not always optimal for a given patient in the broader context of that patient's life goals and aspirations. Physicians must weigh health benefits against forgone non-health benefits to the individual patient when considering the first requirement of the framework.

The examined examples illustrate how the limits of the two-stage framework will be determined by both the severity of the public health crisis and the requirement that some action not only contribute to mitigating that crisis but, first and foremost, align with the patient's health goals. Ultimately, one can view the salient public health threat involved (e.g. climate change) as providing the initial motivation behind the desire to

[28] Murtaugh, P. A., & Schlax, M. G. (2009). Reproduction and the carbon legacies of individuals. Global Environmental Change, 19 , 14–20.

motivate individual patient action. The individual patient good, then—the health benefit to the patient—is the limiting condition on whether the advice can be provided. In application, cases will not always be clear cut, but indeed many seemingly objectionable cases of public health advising in the physician-patient context will be ruled out by the requirement that the advice be, at the outset, patient-centered.

VIII. Addressing Objections

There are objections that this is all too little too late. Some estimates state that only a massive shift in individual diets would accomplish what is needed, on the level of a 75% reduction in global meat and dairy consumption coupled with a 50% reduction in food waste.[29] A similar objection relies on the idea of contributory ethics—that any one clinician providing this advice to any one patient is, in the grand scheme of things, but a drop in the bucket of what is needed.[30] Such objections are important insofar as they motivate us, in public health and other fields, to develop new and innovative strategies to address this crisis, but they should not alleviate the necessity of doing whatever we can with what knowledge and tools we have right now.

There are, likewise, objections that may arise in the event that specific individuals have health, or other, restrictions on their diets. Certainly, clinicians must be sensitive to the safety and health needs of patients and, as is incorporated in the framework, there is a requirement that this specific advice indeed be in the best interests of the individual patient's health. A patient with combined difficulties of severe allergies to all nuts and

[29] Bajželj, Richards, Allwood et al. (2014). Importance of food-demand management for climate mitigation. Nat ClimChang, 4(10):924-929 ; slide adapted from B. Kim; ; The Johns Hopkins Center for a Livable Future.
[30] Rieder, T and Bernstein, J (2020) The Case for 'Contributory Ethics': Or How to Think about Individual Morality in a Time of Global Problems, Ethics, Policy & Environment, 23:3, 299-319, DOI: 10.1080/21550085.2020.1848188

soy and a gluten intolerance may have difficult time achieving nutritional needs on a totally plant-based diet. As discussed earlier, a shift to plant-based eating is, on a grand scale and barring specific dietary restrictions for individuals, better for individual health. The same is true for any specific individual who is unable to get a vaccine due to an allergy or other health concern—a doctor would not advise them to get it. Similarly, a carve-out for the small percentage of people who may not receive health benefits from such a shift would hardly have a great impact on the overall public health value of the framework. The existence of narrow exceptions should not counter the need for a strong default for measures important to public health, like vaccines or the plant-based health advice discussed here.

Similarly, an important consideration must be addressed with respect to how such dietary advice can be delivered and successfully implemented in the context of global injustice in the form of food access problems. For patients who live in food deserts or food swamps, without reliable access to affordable produce and vegetables, an off-handed physician reprimand to incorporate more plant-based food into the diet will, no doubt, ring hollow and out of touch. Barriers to dietary change are manifold and include cost—both perceived and real—of fresh fruits and vegetables for those with limited financial resources, limited exposure to quick and easy plant-based recipes for those with limited time, and an overall comfort level with "traditional" diets that make up one's family and personal eating experiences.[31] Increasingly, work is being done in the area of growing awareness of and access to affordable plant-based eating, including

[31] Pasi, Pohjolainen, M. Vinnari, and J. Pekka. Consumers' perceived barriers to following a plant-based diet. British Food Journal 117(4). March 2015.

urban gardening projects and affordable fresh-food delivery.[32] Just as physicians ought to familiarize themselves with community resources to assist in other lifestyle modifications (e.g. local AA meetings for patients suffering health effects from alcoholism), so too ought they communicate with patients about resources and methods to improve plant-based food access and comfort.

This brings up important practical issues associated with implementation. Greater education for medical providers is needed in the area of nutrition around the evidence-based preventative health benefits of shifting to plant-based diets, and how to counsel patients on doing so in a healthy way given their specific medical conditions. Furthermore, all healthcare providers need greater resources to provide to patients around how to access healthier food. Just as all healthcare providers have developed a default of telling patients to not smoke, refrain from drinking during pregnancy, and to wear seatbelts, a default of telling patients to incorporate more of a plant-based diet should become the norm. Just as with the other "social" aspects of a patient history, this will open the conversation and provide patients with a clear understanding of what is the healthiest course of action. As with the other items, conversations using shared decision-making and patient education are the best place to start.[33]

A. A Transparency Objection

[32] Green Guerrillas, Green Bronx Machine, Chillis on Wheels, Grow Where You are, Lunch on Me, SUPRMARKT, Gorilla Gardner, just to name a few.

[33] Bashaw, KT. Doctors: How to Talk to Patients About Nutrition and Diet. The Doctors Company. https://www.thedoctors.com/articles/doctors-how-to-talk-to-patients-about-nutrition-and-diet/?utm_source=KevinMD&utm_medium=e-newsletter&utm_content=page&utm_campaign=FebruaryPromotion (last accessed 5/2/21)

A final objection can be considered around the issue of transparency. Bernard Williams coined the term Government House Utilitarianism to refer to the concept of a small elite knowing that utilitarianism is the "right moral theory," and employing utility-maximizing procedures and rules to guide the rest of the populace to maximize utility. In this scenario, however, the non-elite public were not "let in on" the utilitarian framework and were, rather, taught to follow social rules out of convention. In this way, the elite would determine what noble goals were worthy of working toward, and the rest of society would be incentivized to take the necessary steps toward those goals, but may never be let in on the true motivations.

Some unease that associates with the concept of a Government House Utilitarianism framework trickles into the framework proposed here. The concept that an "elite" group of physicians can determine what constitutes our most important public health goals may harken back to days of medical paternalism where a doctor knew what was best and would tell a patient what to do rather than engage in patient-centered decision-making. Similarly, the idea of a doctor having one motivation behind their advice (a public health one) but sharing a different motivation with the patient (an individual health one) conjures up concern for a lack of transparency that may feel disingenuous.

As with many of life's problems, this one can be solved with transparency. Ultimately, there is no need here to be deceitful about the twin motivations of individual and public health. Indeed, every doctor-patient encounter is an opportunity for a conversation about individual and public health—an opportunity to share evidence-based advice about health and what drives that advice. With Government House

Utilitarianism, the lack of transparency is, itself, an important component of the ability of the "elite" to keep the public working toward utilitarian endpoints. The framework proposed here involves a "both and." Both the individual health goal and the public health goal should be discussed transparently with the patient. It is just that the public health imperative is what motivates the obligation of the physician to have to provide the advice in the first place.

Conclusion

The American Medical Association, in its Principles of Medical Ethics, expressly lays out dual obligations of physicians: a physician shall be dedicated to providing competent medical care, and a physician shall recognize a responsibility to participate in activities contributing to the improvement of the community and the betterment of public health.[34] Global climate change likely poses the greatest public health threat to humanity over the coming decades. It warrants urgent and massive systemic change, and efforts to bring about necessary changes must be taken up by all sectors of society, including physicians.

An important, and health-centered, approach to help curb the current climate change trajectory is a massive and drastic shift in individual diets toward plant-based foods. In order to assume their public health role in this crisis, physicians must adopt a default, effective practice of advising patients to adopt a plant-based diet. Physicians are permitted to provide this advice to the vast majority of individual patients because

[34] AMA Principles of Medical Ethics. https://www.ama-assn.org/about/publications-newsletters/ama-principles-medical-ethics#:~:text=A%20physician%20shall%20be%20dedicated,for%20human%20dignity%20and%20rights.&text=A%20physician%20shall%20recognize%20a,the%20betterment%20of%20public%20health (last accessed 5/2/21)

plant-based diets are also shown to have direct benefits to patient health. This two-stage framework can be applied to other areas of health advocacy at the intersection of public and individual health. In such contexts, health benefits to an individual patient provides the permission for the advice and the public health benefit provides the imperative for the advice.

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